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(54) **COLLAPSIBLE CONTAINER**

(57) The present invention relates to a collapsible container, comprising a base (2), hinged lateral walls (3) configured for collapsing separately on the base, and attachment means between adjoining lateral walls in the assembled position; wherein the attachment means comprise: a retention element (6) arranged on a lateral wall, and comprising an extension (8) that together with the lateral wall form a groove (9), and a flap (7) arranged on an adjoining lateral wall and said flap (7) is bent inwards, wherein said retention element (6) is spaced a distance from the edge (5) of the lateral wall in which it is arranged, a distance that is a function of the width of the flap (7) to enable the insertion thereof into the retention element (6), during the assembly of the container, wherein the retention elements (6) are arranged on the same lateral wall and the flaps are arranged on the same adjoining lateral wall; and wherein the container further comprises a flexible internal structure for separating and protecting the products to be transported in the container, and wherein the flexible internal structure is fixed on bars (10) arranged between the flaps (7) of opposite lateral walls.

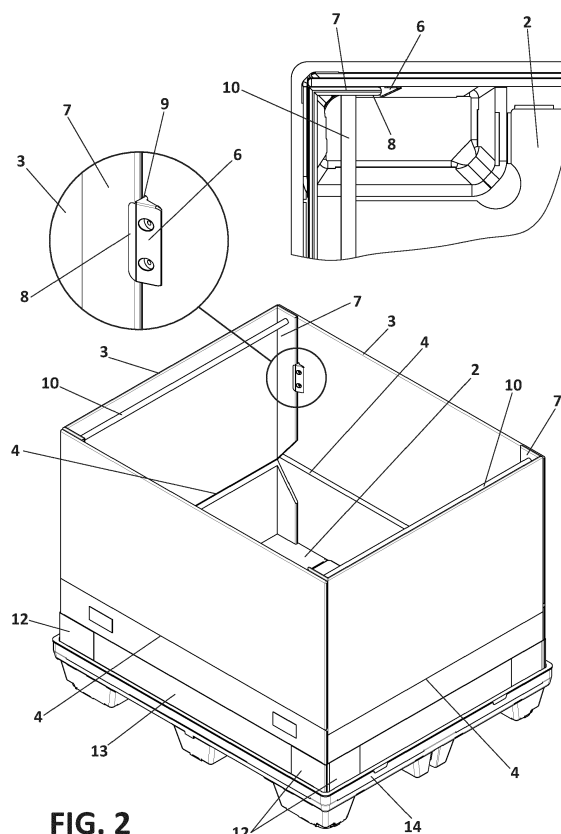


FIG. 2

Description

Object of the invention

[0001] The present invention relates to a collapsible container, the main objective of which is to facilitate the collapsing/assembly thereof, for which the attachment between the adjoining lateral walls that make up the container is simplified.

[0002] The invention is applied to any type of container that must be collapsed in order to occupy less space in the storage and transport thereof when it has been emptied, such as pallet type or any other type of containers. Thus, a type of container in which the invention is applied, it is those comprising a conventional flexible internal structure, configured to carry out the separation and protection of the products to be transported, in which case, it is a further object of the invention to prevent said flexible internal structure or any of the portions thereof from having to be disassembled when collapsing, so that in these cases the collapsing/assembly is considerably simplified.

Background of the invention

[0003] At present, collapsible containers that are equipped with a base from which lateral walls emerge that collapse separately, folding them towards the inside of the container are marketed. Once the lateral walls have collapsed, the assembly is closed by means of a lid that covers them. This lid is further used to close the container when it is unfolded and assembled.

[0004] In this sense, the Spanish utility model with application number U9601828 can be cited, in which a collapsible container pallet is described comprising a base and foldable straight quadrangular lateral plates that can be folded sequentially on the base. It also comprises a collapsible prismatic laminar part with a strapping, washer or band, which, in the unfolded position of the lateral plates, is arranged outside and around said lateral plates, sheathing them to maintain the unfolded position. It also comprises a closure lid both in the collapsed and unfolded position. The container can be embodied by means of different materials, such as plastic, cardboard, wood, metal, etc.

[0005] This configuration has the drawback that the incorporation of the collapsible prismatic laminar part is required, and the need to handle it when assembling the container, which complicates the structure of the container and the collapse/assembly thereof.

[0006] To simplify the preceding configuration, another type of collapsible container was created wherein the lateral walls thereof are embodied by means of the collapsible prismatic laminar part of the previous model, which forms the strapping, avoiding the use of the foldable straight quadrangular plates. In this case, the configuration of the collapsible prismatic laminar part must be more resistant and heavier, so that in the assembled position it is inserted into the base, so that for the collapsing to

be carried out, it must be removed from the base, lift its weight, collapse it and lay it down on the base, and in the assembly operation the reverse operation is carried out, which makes the handling thereof difficult, both at the time of assembly and collapsing.

[0007] The existence of other types of containers with thick and heavier walls that are manufactured and marketed by numerous companies, such as Schoeller Allibert, Schoeller Area System, Ropak, UTZ, Qpall, Kaiser+Kraft or Auer, can also be mentioned.

[0008] In this sense, mention can be made of the European patent document with publication number EP0911268, which describes a collapsible container equipped with a base, with separately collapsible lateral walls, towards the inside of the container, and provided with attachment formations with adjoining walls, that fit by fixing on the walls during assembly, and that furthermore, the collapsing is carried out on hinges, which also house the attachment formations of the adjoining lateral wall when the container is collapsed, to attach them during collapsing. This container has the drawback of being equipped with a rather complex attachment structure that makes the product more expensive and makes handling difficult.

Description of the invention

[0009] To achieve the objectives and solve the aforementioned problems, the invention consists of a container which, similar to those envisaged in the state of the art, comprises a base and hinged lateral walls, configured to collapse separately on said base, and which further comprises attachment means between the adjoining lateral walls in the assembled position.

[0010] The main novelty of the invention focusses on the attachment means, which comprise a retention element, arranged on a lateral wall, and a flap arranged on an adjoining lateral wall, configured to be inserted into the retention element when assembling the container. The number of lateral walls of the preferred embodiment is four, although it can be any other number, depending on the required needs.

[0011] The flap is bent inwards, and the retention element is spaced a distance from the edge of the lateral wall in which it is arranged, such that this distance is a function of the width of the flap to enable the insertion thereof into the retention element.

[0012] In the preferred embodiment, the attachment means comprise a groove for inserting the flap, such that the adjoining lateral walls are fixed. For this, the retaining element comprises an extension which, together with the lateral wall to which it is fixed, form the groove for inserting the flap.

[0013] In one embodiment it is envisaged that the groove can be made in the retaining element, without the need for the lateral wall to intervene in the attachment.

[0014] Moreover, in the preferred embodiment, the retention elements are arranged on the same lateral wall,

and the flaps on the same adjoining lateral wall, to facilitate assembly and collapsing, although it is also possible that on the same lateral wall, attachment elements can be arranged alternating with flaps, that is, each lateral wall comprises an attachment element, and a flap on the opposite side, so that the same attachment functionality is achieved.

[0015] The invention provides for the possibility that the container may be equipped with a conventional flexible internal structure, of the type that is configured for separating and protecting the products to be transported in the container. For this, the container must comprise lateral walls with flaps on the opposite edges thereof, so that on opposite lateral walls, a bar is arranged on which the flexible internal structure is fixed in a slidable manner. This configuration, together with the described attachment means, prevents the flexible internal structure from having to be disassembled when collapsing the container.

[0016] The hinge of the lateral walls is embodied by means of axes defined by slits made in said lateral walls. The hinge axes of opposite lateral walls are arranged at the same height, and those of the lateral walls adjoining the preceding ones are arranged at different heights, such that first the lateral walls the axes of which are arranged at a lower height are collapsed and then the higher ones are collapsed over the preceding ones, which facilitates the collapsing of some lateral walls on top of the others.

[0017] In one embodiment, the container comprises a closure lid that is used both in the position in which it is assembled, to close the container and protect the contents thereof, and in the collapsed position to cover and protect the lateral walls, and to obtain a compact collapsed container. The lid is envisaged to include handles to facilitate the handling thereof.

[0018] In the lower portion of the lateral walls and below the hinges, it comprises a perimeter band for fixing and reinforcing said lateral walls, on which, in addition, it is possible to incorporate corner pieces for reinforcing and fixing adjoining lateral walls.

[0019] In the preferred embodiment, the base is solidly joined with a platform with pallet type support blocks, to facilitate stacking and handling of the containers by means of forklift trucks. Furthermore, the lid comprises centering stops for centering the containers when stacking.

[0020] The described configuration facilitates the assembly and collapsing of the container by a single person without the use of force, which guarantees great ease and comfort of use.

[0021] In short, the described configuration has the following advantages compared to the state of the art:

- It facilitates the handling of the container, as it is not necessary to disassemble any element separating it from the assembly. In the event that it includes a flexible internal structure, separation is not required

either, remaining inside the container once collapsed.

- It provides greater ergonomics, as it is not necessary for the user to use force to lift the body of the container during extraction, since no element must be removed. Therefore, it improves the ergonomic conditions of the end user.
- It enables the possibility of applying it to containers customisable in number of lateral walls, dimensions, width, depth and height to be defined by the client.
- It involves a weight reduction compared to injected containers, with the consequent savings in transport and emissions derived from logistics, being environmentally friendly.
- It simplifies the configuration of the container, since it does not require a return ring fixed to the pallet for containers with an interior.

Description of the figures

[0022] To complete the description, and for the purpose of helping to make the features of the invention more readily understandable, this description is accompanied by a set of figures constituting an integral part of the same, which by way of illustration and not limitation represents the following:

Figure 1 shows a perspective view of a possible exemplary embodiment of the invention of an assembled container with a lid on.

Figure 2 shows a perspective view of the preceding figure wherein the lid has been removed. Furthermore, a detail of the attachment means and a partial top plan view of a corner of the container have been represented to facilitate understanding of how the container is assembled.

Figure 3 shows a perspective view of the preceding figure, in the position wherein the collapsing of the container has begun.

Figure 4 shows the container in a more advanced collapsing phase.

Figure 5 shows the container in the collapsed position and with the lid on.

Preferred embodiment of the invention

[0023] The invention is described below based on the previously mentioned figures. A collapsible container is proposed, which comprises a base (2), hinged lateral walls (3) configured for collapsing separately on the base, and attachment means between adjoining lateral walls in the assembled position. Said attachment means comprise a retention element (6) arranged on a lateral wall, and comprising an extension (8) that together with the lateral wall form a groove (9), and a flap (7) arranged on an adjoining lateral wall and said flap (7) is bent inwards.

[0024] The retention element (6) is spaced a distance from the edge (5) of the lateral wall in which it is arranged,

a distance that is a function of the width of the flap (7) to enable the insertion thereof into the retention element (6), during the assembly of the container. The retention elements (6) are arranged on the same lateral wall and the flaps are arranged on the same adjoining lateral wall.

[0025] The container further comprises a flexible internal structure for separating and protecting the products to be transported in the container, and said flexible internal structure is fixed on bars (10) arranged between the flaps (7) of opposite lateral walls.

[0026] That is to say, the invention consists of a collapsible container (1), equipped with a base (2) and lateral walls (3) hinged by means of axes (4), defined by slits made in the lateral walls (3), to enable the collapsing thereof, separately, on the base (2). In the example, the base of the container is of a quadrangular configuration, with four lateral walls, but it could have any other configuration with any other number of lateral walls, depending on the required needs.

[0027] The axes (4) of the opposite lateral walls (3) are arranged at the same height and the axes (4) of the other two walls, adjoining the preceding ones, are arranged at the same height but different from the preceding ones, to enable the collapsing thereof, as will be described later.

[0028] The lateral walls (3) are equipped with attachment means between adjoining lateral walls to carry out the assembly and collapsing of the container.

[0029] The attachment means comprise a retention element (6), provided on one of the lateral walls (3), which are complemented by flaps (7), bent inwards and provided on the lateral walls (3) adjoining the preceding ones, so that the retention elements (6) are spaced a certain distance from the edge (5) of the lateral wall, which is a function of the width of the flaps (7), to enable the flap to be retained in the retaining elements (6). In addition, for this, said retention elements (6) are equipped with an extension (8), which together with the lateral wall in which it is fixed, defines a groove (9) for inserting and retaining the flap (7), so that the assembly and collapsing of the lateral walls (3) can be carried out.

[0030] Therefore, the flap (7) is bent inwards and the retaining element (6) is spaced a distance from the edge (5) of the lateral wall, a distance that is a function of the width of the flap to enable the insertion thereof into the retention element. More specifically to enable the insertion thereof into the groove (9).

[0031] The possibility is envisaged that the groove (9) could be provided directly on the retaining element itself, without the need for the lateral wall to intervene in retaining the flap (7).

[0032] In the exemplary embodiment, the retention elements (6) are provided on the same lateral wall and the flaps on the same adjoining lateral wall, to facilitate the collapsing/assembly thereof, although obviously they can be distributed by alternating them on the same lateral wall.

[0033] The invention further provides for the possibility that the container can incorporate a flexible internal struc-

ture, which has not been represented in the figures as it is conventional and is not the object of the invention, such as may be, for example, an internal compartmentalisation for separating and protecting the products contained in the container. This flexible structure, for example, can be of a textile nature, such as a canvas or the like which, by means of lugs, is retained on bars (10), along which they can slide to be able to extend or retract it during assembly/collapsing. These bars (10) are arranged between the flaps (7) of opposite lateral walls, which facilitates the handling thereof.

[0034] Therefore, the container may comprise a flexible internal structure for separating and protecting the products to be transported in the container. In an exemplary embodiment, the flexible internal structure is fixed on bars (10) arranged between flaps (7) of opposite lateral walls. In another exemplary embodiment, the flexible internal structure is fixed on the bars in a slidable manner by means of lugs.

[0035] Furthermore, the container has a lid (11), which closes it both in the collapsed and the assembled position thereof, on the upper face of which it includes handles (15) to facilitate the handling thereof.

[0036] In the lower portion of the container, and below the collapsing axes (4), it comprises a perimeter band (13), with reinforcement corner pieces (12), to give the container greater resistance.

[0037] Next, starting from the described structure, the way in which the container collapses and assembles will be explained.

[0038] Starting from the assembled container and with the lid (11) on (Figure 1), first the lid (11) must be removed (Figure 2), and then one of the lateral walls that include the two flaps (7) must be pulled back slightly, so that they come out of the grooves (9), releasing the lateral wall. Depending on the dimensions of the lateral walls, the flaps (7) of the same lateral wall can be released one after the other, or simultaneously. Once released, the lateral wall collapses towards the base along the axis (4) thereof.

[0039] The opposite lateral wall is then released and collapsed towards the base in the same way (Figure 3).

[0040] To carry out the correct collapsing, the height of the axis (4) of these lateral walls must be greater than the width of the flaps (7).

[0041] In the event that the container includes a flexible internal structure, and since it is fixed on the bars (10), provided between the flaps (7), what takes place is that when collapsing the lateral walls towards the inside of the container, they take the flexible structure with them, placing it on the base in which it occupies a certain space, so that, in this case, the height of the axes (4) of these lateral walls must also be above this flexible structure when it has collapsed, so that said flexible structure is housed under said lateral walls.

[0042] Therefore the height of the axes (4) is a function of the width of the flaps (7), or of the space occupied by the flexible structure, depending on which one is greater.

[0043] Finally, the other two lateral walls that do not have a flap (7), that is, those that are equipped with the retention elements (6), have also been released and collapse towards the inside of the container (Figure 4), which, as the height of the axes (4) is greater, are perfectly located on the preceding lateral walls. Finally, the lid (11) is placed on the lateral walls, the collapsed container forming a compact structure (Figure 5).

[0044] The unfolding process is the reverse, that is, starting from the collapsed position of the container, and with the lid (11) on (Figure 5), first the lid (11) is removed and the lateral walls equipped with the retention elements (6) are unfolded and then those that include the flaps (7). The flaps (7) are then inserted into the grooves (9), for which it is simply necessary to accompany each flap (7) until it surpasses the retaining element (6) and then allow it to recede slightly until the flap is inserted into the groove (9).

[0045] Since the container of the example includes the flexible internal structure, the tension it exerts when unfolding limits the total opening of the container and once the flaps (7) have been inserted into the grooves (9), this tension also favours the retention of the flaps (7) into the grooves (9).

[0046] Thus, the tension of the flexible structure in the assembled position improves the attachment for insertion of the flaps into the grooves, as well as limits the opening of the bottom walls in the assembling phase.

[0047] In the exemplary embodiment, the base (2) is solidly joined with a platform (14) with pallet type support blocks (17), to enable stacking and handling by means of forklift trucks. The upper face of the lid (11) includes stops (16), configured to facilitate the centring of the support blocks (17) during the stacking operation.

Claims

1. A collapsible container, comprising a base (2), hinged lateral walls (3) configured for collapsing separately on the base, and attachment means between adjoining lateral walls in the assembled position; wherein the attachment means comprise:

- a retention element (6) arranged on a lateral wall, and comprising an extension (8) that together with the lateral wall form a groove (9), and
- a flap (7) arranged on an adjoining lateral wall and said flap (7) is bent inwards,
- wherein said retention element (6) is spaced a distance from the edge (5) of the lateral wall in which it is arranged, a distance that is a function of the width of the flap (7) to enable the insertion thereof into the retention element (6), during the assembly of the container,
- wherein the retention elements (6) are arranged on the same lateral wall and the flaps are arranged on the same adjoining lateral wall,

- and wherein the container further comprises a flexible internal structure for separating and protecting the products to be transported in the container, and wherein the flexible internal structure is fixed on bars (10) arranged between the flaps (7) of opposite lateral walls.

2. The container, according to claim 1, wherein the flexible internal structure is fixed on the bars (10) in a slidable manner by means of lugs.

3. The container, according to any one of the preceding claims, wherein the hinge of the lateral walls is embodied by means of axes (4) defined by slits made in said lateral walls.

4. The container, according to claim 3, wherein the height of the hinge axes (4) of opposite lateral walls are arranged at the same height and those of the adjoining lateral walls are arranged at different heights, to facilitate the collapsing of the lateral walls, some on top of the others.

5. The container, according to any one of the preceding claims, further comprising a lid (11) for closing the container both in the collapsed position and in the assembled position.

6. The container, according to claim 5, wherein the lid comprises handles (15).

7. The container, according to any one of the preceding claims, further comprising in the lower portion of the lateral walls and below the hinge axes (4), a perimeter band (13) for fixing and reinforcing said lateral walls.

8. The container, according to any one of the preceding claims, further comprising, in the lower portion of the lateral walls and below the hinge axes (4), corner pieces (12) for reinforcing and fixing the lateral walls.

9. The container, according to any one of the preceding claims, wherein the base is solidly joined with a platform (14) with pallet type support blocks (17).

10. The container, according to claim 9, wherein the lid comprises stops (16) for centering the containers, when stacking.

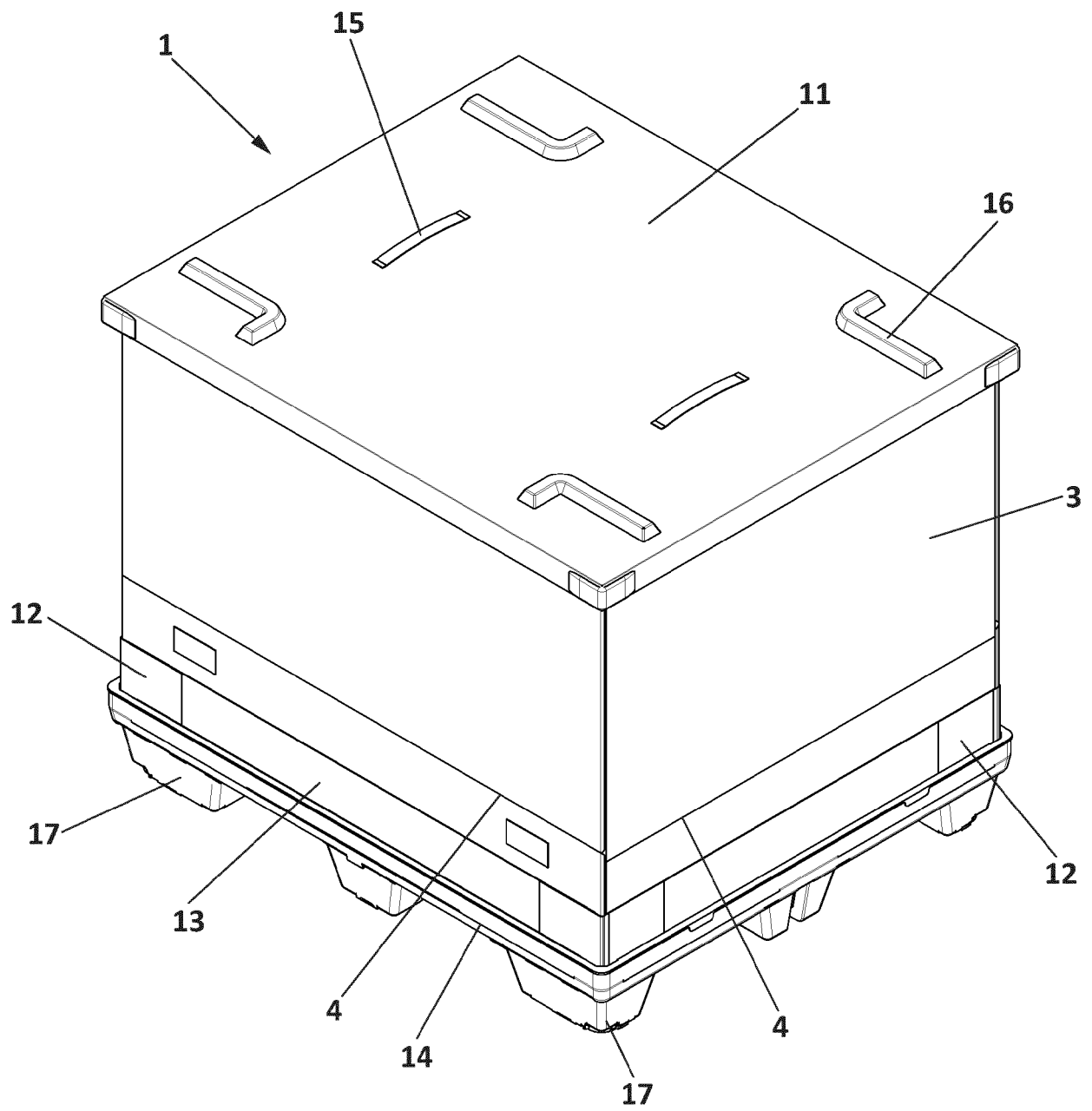
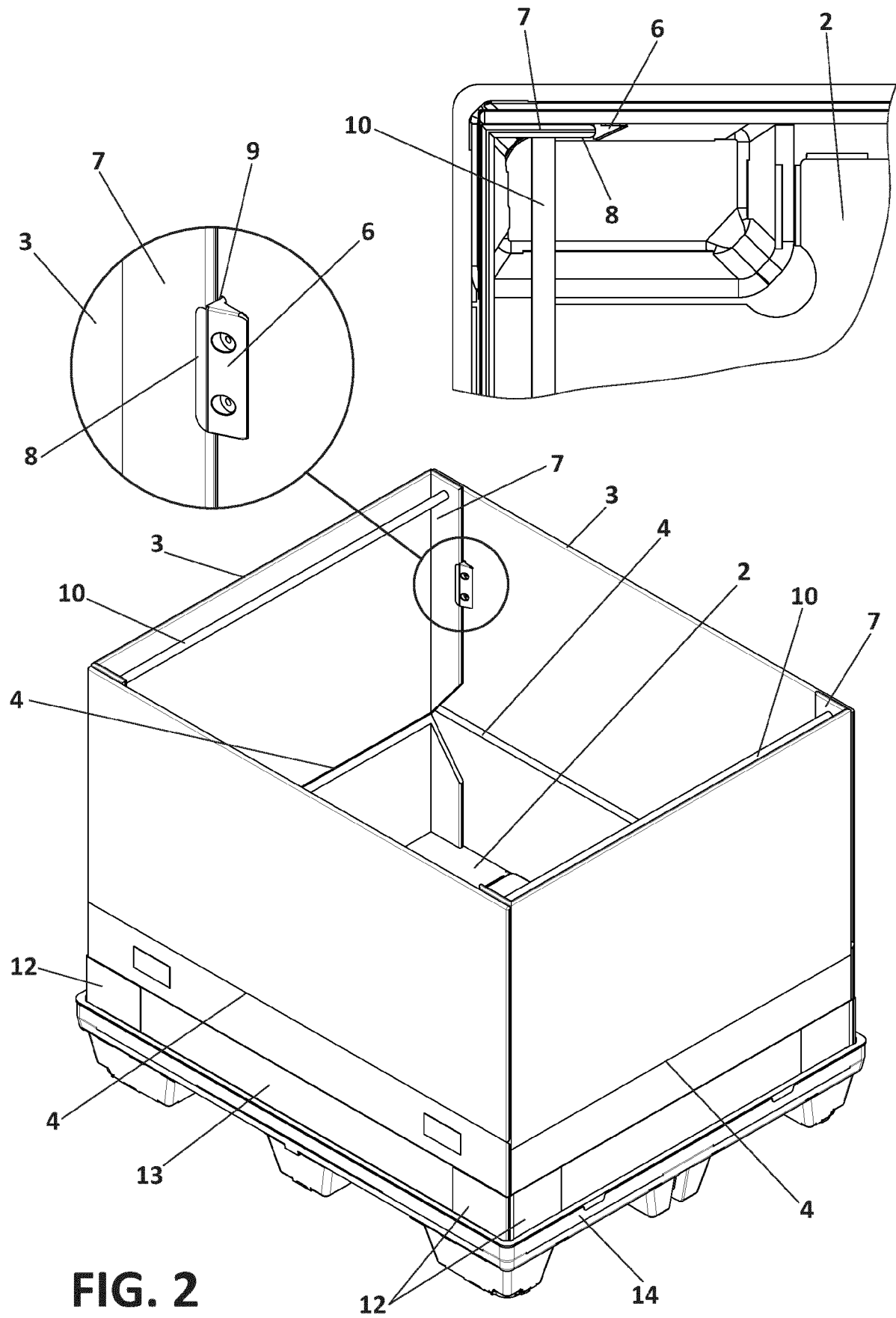


FIG. 1



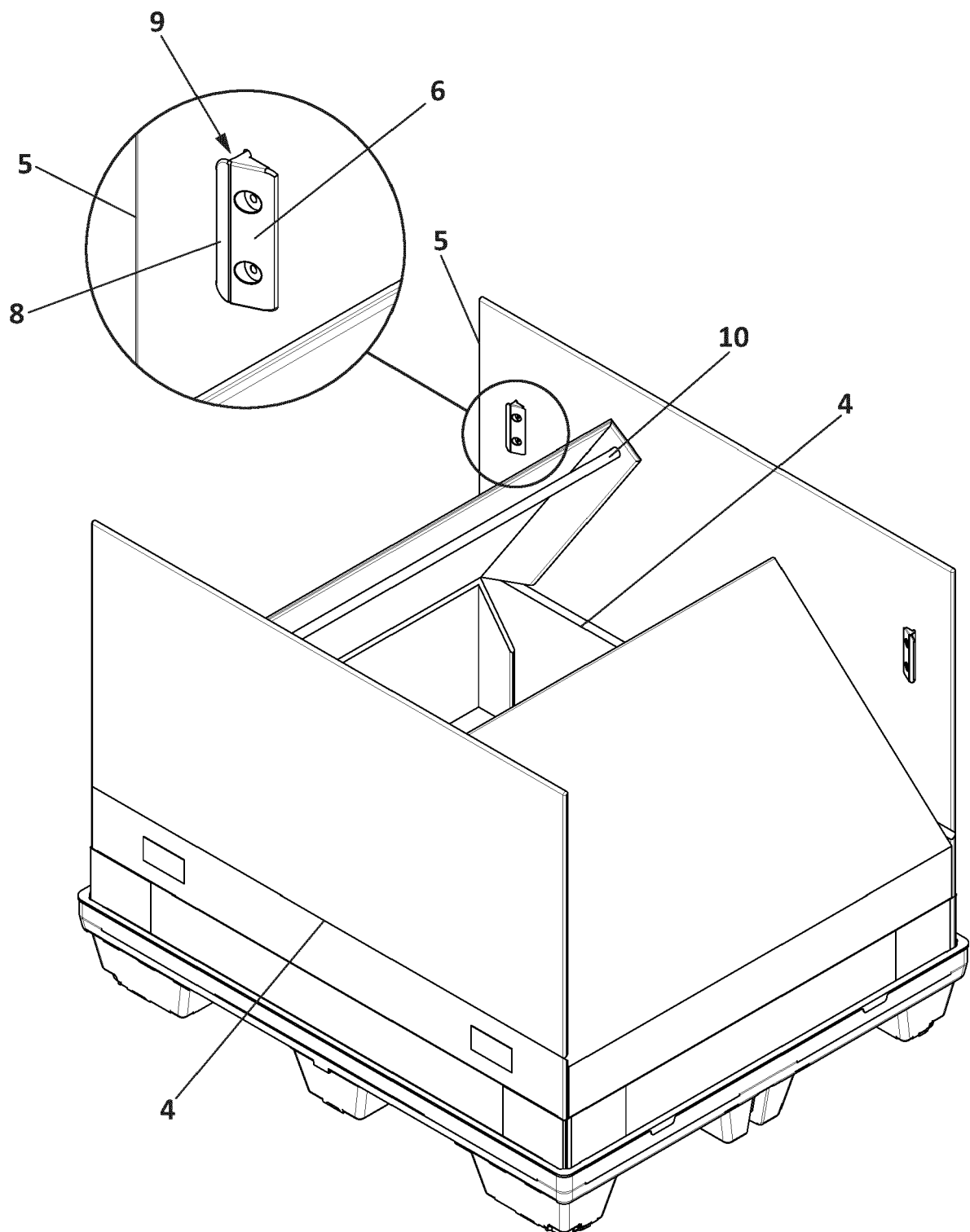


FIG. 3

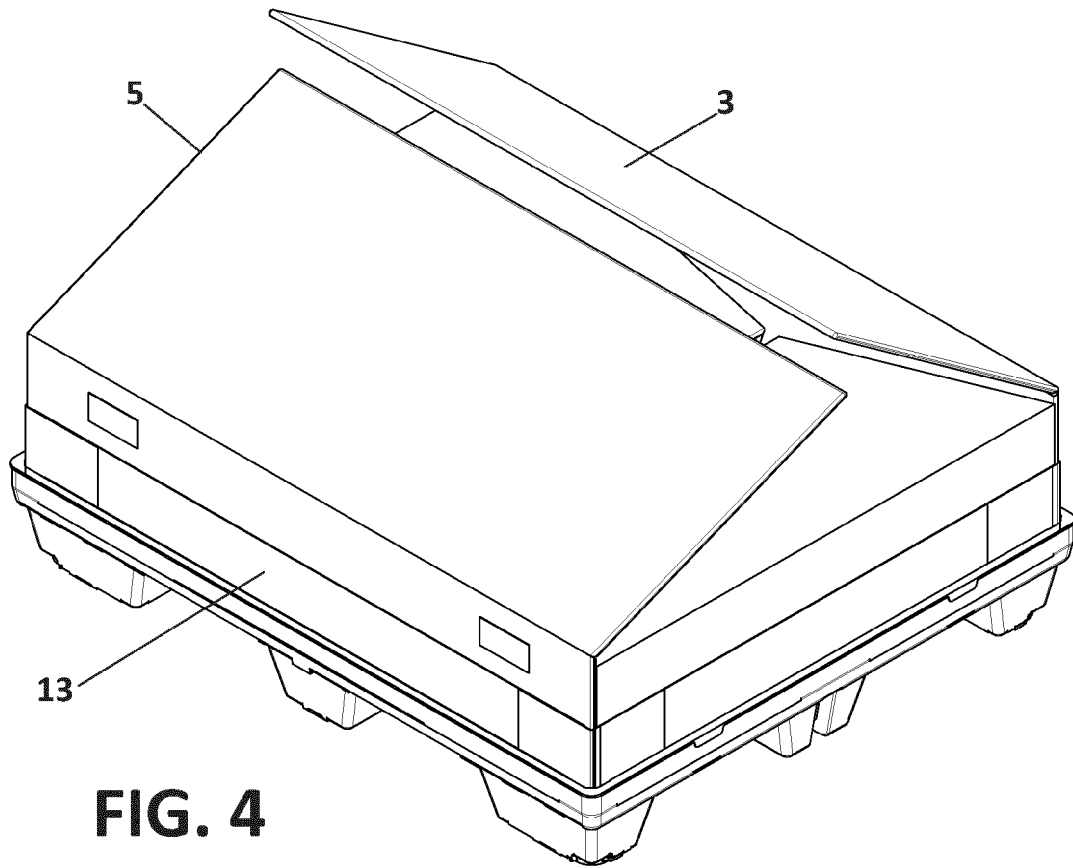


FIG. 4

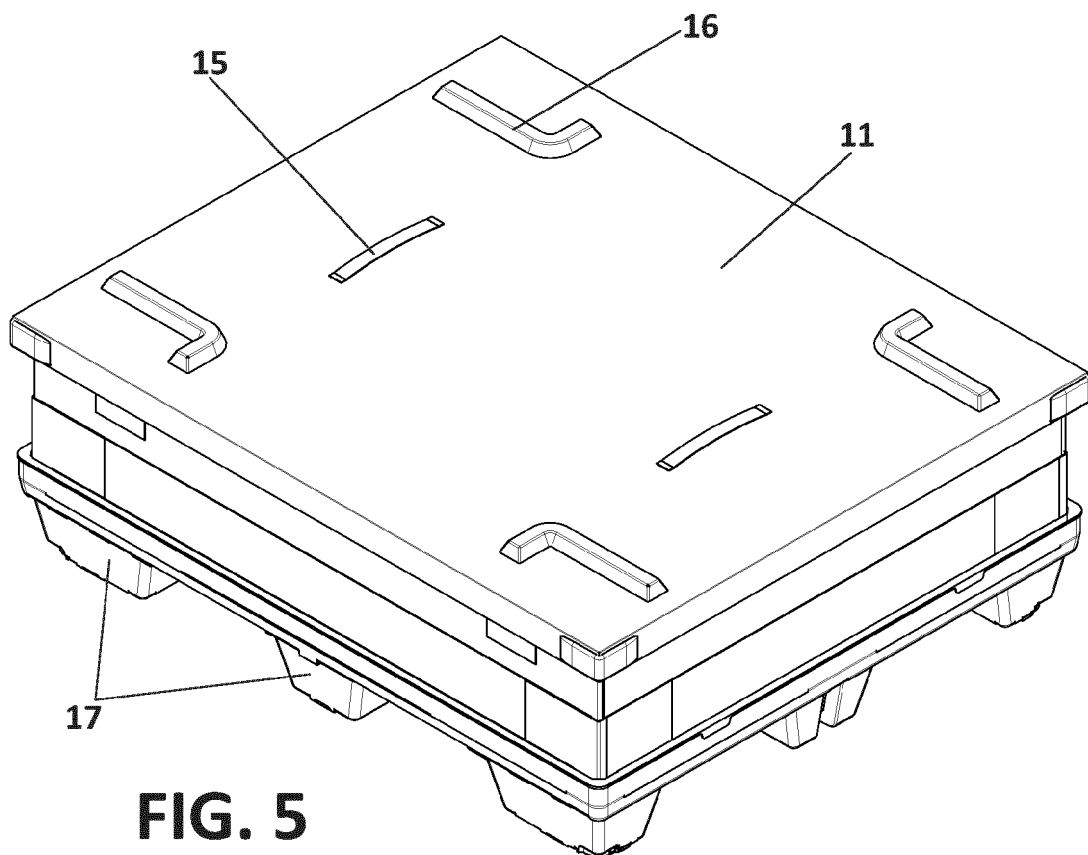


FIG. 5



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Application Number
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 14 July 2021	Examiner Fitterer, Johann
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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